

## PUMP AND PUMP PISTON ASSEMBLY

### ABSTRACT OF THE DISCLOSURE

A pump and a pump piston assembly. The pump piston assembly includes a pump piston, a pump check valve, and a spring. The pump piston has a piston bore extending from a first piston end toward a second piston end. The pump check valve is positioned proximate the first piston end. The spring has an attached portion attached to the pump piston proximate the first piston end and has a biasing portion biasing the pump check valve to fluidly block the piston bore. The attached portion of the spring is closer to the second piston end than is the biasing portion of the spring. The pump includes the pump piston assembly and a pump sleeve, wherein the pump piston is slidably engaged in the sleeve bore of the pump sleeve.

PCT/US2018/033000